

ton, D. C., Dr. M. W. Nielson, Entomological Research Division, U.S.D.A., Mesa, Arizona, Drs. D. D. Jensen, Ray F. Smith, Paul D. Hurd, Jr., and E. G. Linsley of the University of California, Berkeley.

LITERATURE CITED

- HARTMAN, CARL. 1905. Observations on the habits of some solitary wasps of Texas. *Trans. Tex. Acad. Sci.*, 7: 57-58.
- MUESEBECK, C. F. W., KARL V. KROMBEIN, AND H. K. TOWNES. 1951. Hymenoptera of America north of Mexico, Synoptic Catalog. U. S. Dept. of Agric., Agric. Monogr. No. 2, p. 1019.

A Note on the Prey and Nest Structure of *Stigmus inordinatus inordinatus*

(Hymenoptera : Sphecidae)

MARIUS S. WASBAUER AND WILLIAM E. SIMONDS

California Department of Agriculture, Sacramento

Early in 1962, a shipment of two small, black, sphecoid wasps was submitted to the California Department of Agriculture Insect Identification Laboratory. They were collected at Santa Paula, Ventura County, California, 2 February 1962, by B. Osuna. Associated with the wasps were pieces of peony twig (*Paeonia suffruticosa*) and apterous forms of a small aphid.

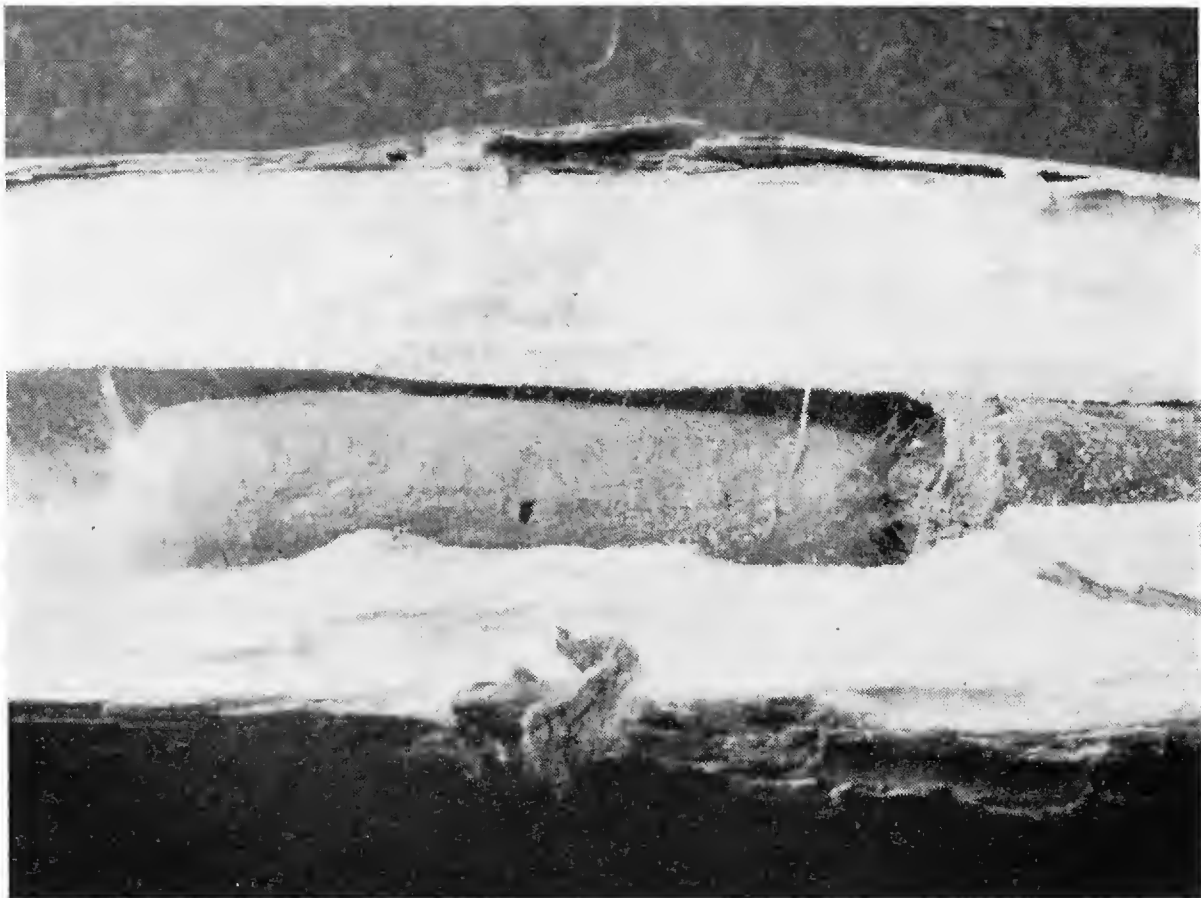
Subsequently, additional material was sent to us which included a longer series of the sphecoid, the twigs from which they were reared, and many more aphids which were found packed in cells in some of the twigs. The twigs of mulberry (*Morus alba*) were present in the shipment and a note from the collector stated that the wasps were nesting in mulberry to an even greater extent than in peony.

Our preliminary determination of the wasp showed it to be a member of the genus *Stigmus*. It was then sent to Dr. K. V. Krombein, who determined it as *Stigmus inordinatus inordinatus* Fox, an austral form occurring in Colorado, New Mexico, Arizona, and California. The aphid proved to be the *Aphis* sp. possibly *frangulae* Kaltenbach (apterous forms only) according to the determination by L. M. Russell.

The one published note on the biology of *Stigmus i. inordinatus* (Rohwer, S. A., 1909, *Trans. Amer. Entomol. Soc.*, 35: 102) states only that Mrs. Cockerell saw a member of this form catch aphids. Thus the fragmentary information presented here will fill out to some degree the almost complete lack of biological data on this species.

A total of seventeen twigs was examined for nesting activity. Of these, five were empty, four contained cells completed and provisioned, and, in the remainder there was some evidence of the development of the wasp. In all of the twigs, the pithy center had been hollowed out, leaving a gallery of relatively uniform diameter, which averaged 2.0 (1.3–3.0) mm. In the twigs of smaller diameter, the pith had been completely removed. No estimate of the depth of the galleries was attempted, since all of the twigs had been cut off before the termination of the burrow.

A linear arrangement of cells was found in some of the twigs. The cells were formed of partitions made across the main gallery. In all cases, the partitions were composed of small bits of pith. They varied in thickness from 5.0 to 8.5 mm. The cells formed by these partitions were from 4.5 to



EXPLANATION OF FIGURE

Fig. 1. Cocoon of *Stigmus inordinatus inordinatus* Fox in twig of *Morus alba*.

9.0 mm in length. There was some individual variation in cell construction. In the gallery having the thickest partition (8.5 mm), for example, most of the partitions were unusually thick (2.5, 4.0, 8.5, 4.5, 1.5, 1.0 mm). The gallery containing the thinnest partition (0.5 mm) had most partitions somewhat thinner (1.0, 0.5, 1.5, 1.5 mm). Cell length was relatively uniform within a gallery, but varied considerably between different galleries. For example, cell lengths in one gallery were 4.0, 3.5,

3.5, and 2.4 mm. In another of about the same diameter, the length of the cells was 7.0, 6.0, 7.0, 9.0, and 7.0 mm.

It was difficult to determine the number of aphids provisioned in a cell, because of a growth of mold which had formed a solid mat over the prey in cells not containing wasps. Of the four twigs containing galleries with fully provisioned cells, aphid counts could be made in two. The first of these contained four cells with 12, 14, 15, and 16 aphids. The second, also containing four cells, had 20, 26, 29, and 30 aphids.

The cocoons (Fig. 1) were elongate and nearly cylindrical but tapering slightly toward the posterior end. They were composed of a single layer of a very thin, flexible parchment-like material. Attached to the outside of the cocoons were numerous short strands of clear silk, probably the remains of a suspensory network. At the anterior end, the strands were more dense and formed a thin, slightly convex partition. The meconium formed a small, black button at the posterior end of the cocoon. One of the two cocoons remaining intact was 9.2 mm in length, 2.0 mm in width at the anterior end and 1.7 mm at the posterior end. The other was 8.7 mm long, 2.0 mm wide at the anterior end, and 1.2 mm at the posterior end.

SCIENTIFIC NOTE

Occurrence of *Drosophila azteca* in a spittlebug mass (Diptera: Drosophilidae).—Dipteran pupae were found in spittle masses of *Aphrophora canadensis* Walley (Homoptera, Cercopidae) in 1963 (from M.S. thesis, Department of Entomology and Parasitology, University of California, Berkeley). Dr. Marshall R. Wheeler, University of Texas, determined the flies reared from the pupae as *Drosophila azteca* Sturtevant and Dobzhansky. As far as is known, this is the first report of an association of this species of *Drosophila* with spittlebug nymphs. According to Dr. F. R. Cole (personal communication), Consultant in Entomology, University of California, Berkeley, the fly *Clastopterymyia inversa* (Walker) (genotype *Drosophila inversa* Walker) is known to be ectoparasitic on the nymphal spittle insects of the genus *Clastoptera*: *Clastoptera obtusa* (Say) on alder in the east, and *Clastoptera lineatocollis* Stål on various plants in California. Dr. Cole kindly supplied this information from his forthcoming manuscript, "Flies of Western North America."—W. E. KELSON, *Mt. Diablo High School, Concord, California.*